

g with rape in mind.
Spectrum. OPTIS is a modulation (er Line). See also HDSL2.

hich converts electrical energy to optical eivers in fiber optic communications sys-

and devices associated with fiber opti- no practical optical computers, all opto-electronic light sources convert the hich is transmitted to the receiving ical signal. In fiber optic systems, the light emitting diodes) or laser diodes. The photo-Intrinsic diodes or APDs (Avalanche d in high-speed, long-haul networks. For short-haul, relatively low-speed optoelectronic devices, repeat the optical signal. light detector, convert it to electrical ert it to an optical signal for insertion in h of these functions requires electrical en- to sense and control this energy. See do r, doesn't take the light signal back to ex-

: components that turn light energy into energy.
tronics.

rically, Australia's second general comp- 1991 to provide competition to then owned from a consortium of Mayne Nickless, unications Fund, Bell South and Cable at work services.

phone terminating in a location other than e circuit out of the PBX. OPX is commonly extension off the PBX in his home. This way really at home. He can also make toll calls

high state if either or both of its inputs are

the U.S. Department of Defense's Trusted

powering arrangement for digital repeaters

vest Broker and CORBA.

tion which allows someone with a touchtone

ne personnel for fixing, installing and repair

telephone company with the means to establish carrier repeater locations.

request, and consisting of one octet connected

circuit used by telephone company technical ordination and control action relating to routing and maintenance of communication systems

ow a company's revenues. You can buy other

. Or you can grow the revenues in your own products, then marketing and selling more

your existing customers. Growing your present businesses is called organic growth.

le" sets the modem to begin a data phone call

— i.e. dial the phone, listen for a carrier tone from a remote modem and connect to that modem. The modem at the receiving end must be set to "Answer" mode. In any asynchronous data conversation, one side must be set to "Originate" and the other to "Answer." Such settings are usually made in software.

Originate/Answer The two modes of operation for a modem. Originate and answer states define the frequencies used to transmit and receive. In a two-way communication system, one modem must be set to originate and the other to answer.

Originating Direction The use of Access Service for the origination of calls from the User premise to a customer premise.

Originating Office The central office that serves the calling party.

Originating Restriction A phone line with this restriction cannot place calls at any time. Calls directed to the phone, however, will be completed normally.

Origination A call that is placed by the mobile subscriber, calling either a land-line or another mobile subscriber.

Origination Cablecasting Programming over which a cable television system operator exercises editorial control. This term includes programming produced by the operator, non-broadcast local programming produced by other entities and carried voluntarily by the system. Example: PRISM; regional news channels; Satellite-delivered non-broadcast programming carried voluntarily by the system, such as HBO, ESPN, CNN, C-SPAN, QVC, etc.

This term does not include programming over which the operator does not exercise editorial control, including any broadcast signal, including satellite-delivered broadcast "superstations" (WGN-TV, WWOR, etc.); Any access channel designated by franchise for public, educational, or governmental use; Leased-access channels.

The cable system operator is required by Section 76.225c of the FCC Rules to maintain records, in the PIF, to verify compliance with rules governing commercial matter in children's programming carried on origination-cablecasting channels. See PIF.

Originator The user that is the ultimate source of a message or probe.

ORM Optically Remote Module. A type of switching module made by AT&T which connects directly to the SESS switch communications module via optical fibers.

Orphan A Windows NT term. A member of a mirror set or a stripe set with parity that is failed in a severe manner, such as a loss of power or a complete head crash. When this happens, the fault-tolerance driver determines that it can no longer use the orphaned member and directs all new reads and writes to the remaining members of the fault-tolerant volume.

Orthogonal Having, meeting or determined at right angles.

Orthogonal Frequency Division Multiplexing See OFDM.

OS 1. Outage Seconds.

2. Operating System, as in MS-DOS (Microsoft Disk Operating System), Windows NT, Windows 2000, Windows XP, Solaris, Unix, Linux, Symbian or OS/2. See Operating System.

3. Operator Services. See Operator Services.

4. Operations System. Includes SCOTS, FMAS, etc.

OS/2 Operating System/2. An operating system originally developed by IBM and Microsoft for use with Intel's microprocessors and for use with IBM personal system/2 personal computers. OS/2 has pretty well died. Microsoft's various flavors of Windows survive.

Osborne Effect Once there was a personal computer company called Osborne Computer Company. One day, the president announced a revolutionary new computer. It was so good not one of his dealers wanted to (or could) sell the existing product and they sold all their inventory back. Meantime, it was six months before the company could deliver the new product. But without any sales in the meantime, it had no money and Osborne went broke. There is a lesson here for companies who are attempting to manage transition between old and new product lines. Be careful, or suffer the horrible consequences of The Osborne Effect.

Oscar Hollywood gives our Oscars for great movies, performances, etc. Apparently when the first statue was cast, someone quipped, "My God. It looks like my uncle Oscar." Apparently it stuck.

Oscillator 1. A device for generating an analog test signal.

2. Electronic circuit that creates a single frequency signal.

Oscilloscope Electronic testing device that can display wave forms and other information on a TV-screen-like cathode ray tube. A basic fixture in sci-fi movies.

OSDM Optical Spatial Division Multiplexing is a technology developed to improve the

efficiency with which SONEI (Synchronous Optical Network) supports bursty packet data traffic such as LAN traffic. OSDM accomplishes this by dynamically allocating arbitrary levels of bandwidth to such traffic, guaranteeing minimum levels that are supplemented by higher levels of bandwidth as it becomes available. OSDM is a protocol-independent, self-contained technology that adopts to various current and developing physical layer technologies such as digital wrappers and DWDM (Dense Wavelength Division Multiplexing).

OSF Open Software Foundation. An industry organization founded in 1988 to deliver technology innovations in all areas of open computer systems, including interoperability, scalability, portability and usability. The OSF was an international coalition of vendors and users in industry, government and academia that worked to provide technology solutions for a distributed computing environment. In February 1996, the OSF consolidated with X/Open Company Ltd. to form The Open Group. See The Open Group. www.open-group.org.

OSF/1 Version 1 of the Open Software Foundation's Unix-based operating system

OSI Open Systems Interconnection. A Reference Model developed by the ISO (International Organization for Standardization, as translated into English). The OSI Reference Model is the only internationally accepted framework of standards for communication between different systems made by different vendors. ISO's goal is to create an open systems networking environment where any vendor's computer system, connected to any network, can freely share data with any other computer system on that network or a linked network. Most of the dominant communications protocols used today have a structure based on the OSI model. Although OSI is a model and not an actively used protocol, and there are still very few pure OSI-based products on the market today, it is still important to understand its structure. The OSI model organizes the communications process into seven different categories and places these categories in a layered sequence based on their relation to the user. Layers 7 through 4 deal with end to end communications between the message source and the message destination, while layers 3 through 1 deal with network access.

OSI Reference Model

Layer 7	Application	Semantics
Layer 6	Presentation	Syntax
Layer 5	Session	Dialog Coordination
Layer 4	Transport	Reliable Data Transfer
Layer 3	Network	Routing & Relaying
Layer 2	Data Link	Technology-Specific Transfer
Layer 1	Physical	Physical Connections

Layer 1 — The Physical Layer deals with the physical means of sending data over lines (i.e., the electrical, mechanical and functional control of data circuits). Examples include EIA-232 (RS-232), T-carrier and SONEI.

Layer 2 — The Data Link Layer is concerned with procedures and protocols for operating the communications lines. It also has a way of detecting and correcting message errors. Examples include Frame Relay, PPP (Point-to-Point Protocol), and SLIP (Serial Line Internet Protocol). ATM runs at Layers 1 & 2, as do LANs.

Layer 3 — The Network Layer determines how data is transferred between computers. It also addresses routing within and between individual networks. The most visible example is IP (Internet Protocol).

Layer 4 — The Transport Layer defines the rules for information exchange and manages end-to-end delivery of information within and between networks, including error recovery and flow control. TCP (Transmission Control Protocol) is an example, as is the OSI Transport Protocol (TP), which comprises five layers of its own. Layer 4 protocols ensure end-to-end integrity of the data in a session. The X.25 packet-switching protocol operates at Layers One, Two, Three, and Four.

Layer 5 — The Session Layer is concerned with dialog management. It controls the use of the basic communications facility provided by the Transport layer. If you've ever lost

your connection while Web surfing, you've likely experienced a session time-out, so you have some sense of the Session Layer.

Layer 7 — The Applications layer contains functions for particular applications services, such as file transfer, remote file access and virtual terminals. TCP/IP application protocols such as FTP (File Transfer Protocol), Simple Mail Transfer Protocol (SMTP), SNMP (Simple Network Management Protocol) and TELNET (TELEcommunications Network) take place at Layer 7.

OSI Model Open Systems Interconnection Model. See OSI.

OSI Presentation Address The address used to locate an OSI Application entity. It consists of an OSI Network Address and up to three selectors, one each for use by the Transport, Session, and Presentation entities.

Step 1 — Listen for dial tone.
Step 2 — Dial a phone number.
Step 3 — Wait for a ring.
Step 4 — Exchange greetings to check that the connection is made and we're speaking the same language.

- Step 1 — Listen for dial tone.
- Step 2 — Dial a phone number.
- Step 3 — Wait for a ring.
- Step 4 — Exchange greetings to check that the connection is made and we're speaking the same language.
- Step 5 — Talk, i.e. communicate messages back and forth.
- Step 6 — Prepare to end conversation. For example, say Goodbye.
- Step 7 — Take physical action. Hang up.

OSINET A test network sponsored by the National Bureau of Standards (NBS) designed to provide vendors of products based on the OSI model a forum for doing interoperability testing.

OSMINE Operations System Modifications for the Integration of Network Elements. OSMINE enables equipment used by Regional Bell Operating Companies (RBOCs) and other service providers to be managed effectively from the same software program, helping to ensure multi-vendor interoperability.

OSP 1. Operator Service Provider. A new breed of long distance phone company. It handles operator-assisted calls, in particular Credit Card, Collect, Third Party Billed and Person-to-Person. Phone calls provided by OSP companies are often more expensive than phone calls provided by "normal" long distance companies, i.e. those which have their own long distance networks and which you see advertised on TV. You normally encounter an OSP only when you're making a phone call from a hotel or hospital phone, or privately-owned

2. **Online Service Provider.** A company that provides content only to subscribers of a service. This content is not available to regular Web surfers. The idea was to have a subscription and other revenues from a closed knit group of people. The problem with this was the Internet came along and no one any longer could afford a team to compile the Web's exploding and varied content. So, some online service providers dropped their attempt at content altogether. Others severely limited it. But all were forced to offer (or do offer) access to the Internet. As a result the term "online service provider" has quickly become obsolete, to be replaced by the term, Internet Service Provider.

Open Shortest Path First (OSPF) as described in RFC 1245 and RFC 1583 is a routing protocol designed for larger or more complex networks than those typically supported by the Routing Information Protocol (RIP). OSPF uses link state and interior gateway protocols to create a network map on each router and then uses the Dijkstra shortest path algorithm to find the optimum path between network devices. RIP has visibility only to the next hop and uses the distance vector algorithm.

As an interior gateway protocol, OSPF distributes routing information between routers in a single autonomous system. Once all routers have constructed their databases based on the LSA information, they run the Shortest Path First Algorithm. This results in a tree structure with each router at the "root" of its own tree, and the shortest path to all other destinations mapped out. The selection of the path to these destinations is based on metrics. These metrics may be based on hop count, bandwidth, load, cost, reliability, delay, or a combination of these. The metrics are controlled statically by the user. This provides the network manager greater control over the routing occurs in the network. Dijkstra's Shortest Path Algorithm is a mathematical process by which it is possible to find the shortest path between points. Essentially, the Dijkstra Shortest Path Algorithm calculates the cost of a path between points beginning with the closest points to the starting point and works its way outward until it reaches the destination point. A high bandwidth link costs less because more information can be sent across at one time. Conversely, a lower speed/smaller bandwidth connection costs more because it is not able to send information as quickly. For instance, when sending packets across a 56k point-to-point serial connection there is more delay and overhead than if the same packet was sent over a 100Mbps Ethernet connection. Therefore, it would cost more money to send a transmission over the 56k connection compared to the 100Mbps connection.

OSPF is an excellent protocol in a larger network because it can build a map of a complex network and then navigate a path between two of the network devices with the ability of the entire network providing the most efficient routing paths possible. Because of its ability to handle large complex networks, OSPF can be complex for the network manager to configure and set up and requires greater computing power within the router. However, OSPF is often the routing protocol of choice when configuring larger networks due to its ability to quickly adapt to network changes (faster route convergence), network metrics, area-based topology, low traffic overhead and the ability to support complex address structures and route summarization. Such speed and efficiency means optimized bandwidth usage, faster routing compared to other comparable protocols (RIPv2), lower network latency and better overall network performance, which is especially useful in networks where bandwidth is at a premium such as in a WAN.

OSPR Optical Shared Protection Ring.

OSS Operations Support System. Methods and procedures (mechanized or not) which directly support the daily operation of the telecommunications infrastructure. The overall

OTC Operating Telephone Company.

Other Common Carrier OC providers of long distance telephone service. All long distance carriers.

OTIA NTIA's Office of Telecommunications and local governments, education agencies, and other groups in effectively reaching out to better provide public services requested through the administration of the Telecommunications Assistance Program (TIAP) (OTIP) and the National Endowment for Telecommunications and Information Infrastructure. The program provides support for use of advanced telecommunications technology in nonprofit sectors. The program provides support for governments, health care providers, schools, public safety services, and other non-profit structures and services that are accessible to the public. The program was specifically created to support the development of public telecommunications infrastructure. The Public Telecommunications Administration (PTA) program provides for the expansion and improvement of public telecommunications infrastructure that disseminate information to the American public. The main objective of the program is to provide information and television to unserved areas. NTIA funds are also allocated to support the development of the Global Positioning System (GPS) (PEACESAT) project. PEACESAT is a global environmental emergency telecommunications system in the Pacific Ocean. The National Endowment for Telecommunications and Information Infrastructure supports the creation and production of educational materials. The program provides information and support to supplement the current curriculum in the fundamental intellectual skills of the National Council on Children's Education. NTIA is currently funding criteria for the program. See www.ntia.doc.gov/otia.htm.

Other: Paul A Belgian lawyer with the idea of a Universal Network for Information and Communications Technology (UNICOM) be granted through multimedia workstations.

OTN See Optical Transport Network.

OTOM Abbreviation for "On The Other Side" (Bulletin Board Systems).